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AMIN & TUROCY, LLP  
24TH FLOOR, NATIONAL CITY CENTER  
1900 EAST NINTH STREET  
CLEVELAND, OH 44114

EXAMINER

KANG, INSUN

ART UNIT PAPER NUMBER

2124

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.



**Office Action Summary**

Application No.

09/842,527

Applicant(s)

ANDERSON ET AL.

Examiner

Insun Kang

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |



### **DETAILED ACTION**

1. This action is in response to the amendment filed 9/1/2004.
2. As per applicant's request, claims 1, 14, 23, and 32 have been amended. Claims 1-49 are pending in the application.

#### ***Drawings***

3. The objection to the drawings has been withdrawn due to the amendment to the drawings.

#### ***Specification***

4. The objection to the specification has been withdrawn due to the amendment to the specification.

#### ***Claim Rejections - 35 USC § 112***

5. The rejection to claims 1-13 has been withdrawn due to the amendment to the claims.

#### ***Claim Rejections - 35 USC § 101***

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 1-35 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-35 are non-statutory because they are directed to a "computer implemented method for creating a language neutral representation of a compile unit" without recitation of corresponding steps in creating the language neutral representation. The claims do not recite a description of what the creating a language



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neutral representation was or how the language-neutral representation elements such as hierarchal arrangement of program elements etc were conducted/related with respect to creating the language neutral representation. Thus the claims represent non-functional descriptive material that is not capable of producing a useful result, and hence represent only abstract ideas. Therefore, the claims are non-statutory.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-49 are rejected under 35 U.S.C. 102(e) as being anticipated by Bosworth et al. (US Patent 6,738,968) hereinafter referred to as "Bosworth."

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.



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Per claim 1:

Bosworth discloses:

- a language-neutral representation of a compile unit transformable to at least one of a plurality of different types of code representations (Bosworth, i.e. "the common language output files...have executable instructions in a "common"...in the sense of universal...intermediate language suitable for representing the concepts of a plurality of different types of source languages... so that only one type of intermediate language need be used regardless of the specific source language used," col. 13 lines 27-47)
  - a hierarchal arrangement of program elements that neutrally characterize the compile unit (i.e. "the association of metadata with the boxed value type permits the storage of the boxed value type within the object class hierarchy," col. 13 lines 1-10 and abstract)
  - at least one of the program elements representing a type declaration that characterizes at least one class of programmatic constructs of the compile unit (i.e. "The objects of a class hierarchy, such as class hierarchy...typically derive from a base root object," col. 11 lines 27-44)
- as claimed.

Per claim 2:

The rejection of claim 1 is incorporated, and further, Bosworth discloses:

- a collection of at least one member that characterizes programmatic attributes associated with and able to be implemented within the at least one class (Bosworth, i.e.



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"child boxed value types ...inherit methods and other attributes from parent boxed value types... The dual representation of value types...as boxed value types in the object class hierarchy implies that value types can have methods and can behave as objects," col. 12 lines 1-29) as claimed.

Per claim 3:

The rejection of claim 2 is incorporated, and further, Bosworth discloses an expression class within the at least one class (Bosworth, i.e. "In the object class hierarchy..., built-in value types...and user-defined value types...are stored as any other object within the object class hierarchy..., providing the boxed value type with object-like attributes," col. 11 lines 45-62) as claimed.

Per claim 4:

The rejection of claim 2 is incorporated, and further, Bosworth discloses a statement class within the at least one class (Bosworth, i.e.col. 7 lines 13-35) as claimed.

Per claim 5:

The rejection of claim 2 is incorporated, and further, Bosworth discloses a namespace that contains the at least one class (Bosworth, i.e.col. 12 lines 60-67) as claimed.

Per claim 6:

The rejection of claim 1 is incorporated, and further, Bosworth discloses at least one of the program elements of the hierarchal arrangement encapsulates another of the program elements (Bosworth, i.e. col. 11 lines 27-44) as claimed.



Per claim 7:

The rejection of claim 1 is incorporated, and further, Bosworth discloses the interface being operative to enable transformation of the language-neutral representation to a corresponding desired code representation (Bosworth, i.e. "The front end compiler...in addition to being able to read and analyze their respective source files...are capable of reading and analyzing files represented in the common language," col. 13 lines 27-47; col 11. lines 27-44) as claimed.

Per claim 8:

The rejection of claim 7 is incorporated, and further, Bosworth discloses that the program elements comprise objects, each object exposing at least one of a method, attribute, and property of each respective object, the interface being operative to employ the at least one of method, attribute and property to facilitate the transformation into the desired code representation (i.e. "The front end compiler...in addition to being able to read and analyze their respective source files...are capable of reading and analyzing files represented in the common language," col. 13 lines 27-47; "metadata provides a common interchange mechanism for use between tools that manipulate objects," col. 12 lines 39-59) as claimed.

Per claim 9:

The rejection of claim 7 is incorporated, and further, Bosworth discloses a compiler interface programmed to enable transformation of the language-neutral representation



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to a corresponding low-level language code representation (Bosworth, "any translation of the common language file into a form suitable for use by the runtime environment...convert the received common output files...into output code that can be executed in the execution environment," col. 14 lines 1-10) as claimed.

Per claim 10:

The rejection of claim 9 is incorporated, and further, Bosworth discloses an assembly of computer-executable instructions (Bosworth, i.e. "any translation of the common language file into a form suitable for use by the runtime environment...convert the received common output files...into output code that can be executed in the execution environment," col. 14 lines 1-10) as claimed.

Per claim 11:

The rejection of claim 7 is incorporated, and further, Bosworth discloses a code generator interface programmed to enable conversion of the language-neutral representation to a corresponding high-level language code representation (Bosworth, i.e. col. 13 lines 27-47 ; "any translation of the common language file into a form suitable for use by the runtime environment...convert the received common output files...into output code that can be executed in the execution environment," col. 14 lines 1-10) as claimed.

Per claim 12:

The rejection of claim 1 is incorporated, and further, Bosworth discloses



-the program elements comprise instances of a plurality of language-neutral classes, each instance defining an associated object (i.e. Fig. 3b and col. 11 lines 27-44) as claimed.

Per claim 13:

The rejection of claim 12 is incorporated, and further, Bosworth discloses at least one associated object represents the type declaration, at least another object being encapsulated within the at least one object representing the at least one type declaration, the at least another object representing program code of the compile unit that derives from a class associated with the at least type declaration (i.e. Fig. 3b, "The objects of a class hierarchy, such as class hierarchy..., typically derive from a base root object," col. 11 lines 27-44) as claimed.

Per claim 14:

Bosworth discloses:

-A language-neutral representation of compile unit (Bosworth, i.e. "the common language output files...have executable instructions in a "common"...in the sense of universal...intermediate language suitable for representing the concepts of a plurality of different types of source languages...so that only one type of intermediate language need be used regardless of the specific source language used," col. 13 lines 27-47)

-an instance of at least one of a plurality of language-neutral classes, the plurality of classes representing different programmatic constructs of a compile unit and having a hierarchal relationship relative to each other, whereby transformation of the instance



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into a different representation of the respective programmatic construct is facilitated ("The objects of a class hierarchy, such as class hierarchy... typically derive from a base root object," col. 11 lines 27-44; "the association of metadata with the boxed value type permits the storage of the boxed value type within the object class hierarchy," col. 13 lines 1-10; "any translation of the common language file into a form suitable for use by the runtime environment...convert the received common output files...into output code that can be executed in the execution environment," col. 14 lines 1-10) as claimed.

Per claim 15:

The rejection of claim 14 is incorporated, and further, Bosworth discloses -each instance of a corresponding class of the plurality of classes represents a respective programmatic construct of the compile unit, the plurality of instances being organized in a hierarchal relationship based on the classes associated with the plurality of instances and relationships among the programmatic constructs represented thereby (Bosworth, i.e. col. 11 lines 27-44) as claimed.

Per claim 16:

The rejection of claim 15 is incorporated, and further, Bosworth discloses that each of the plurality of instances exposes at least one item associated with the programmatic construct represented thereby (Bosworth, i.e. col. 11 lines 27-44) as claimed.

Per claim 17:



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The rejection of claim 16 is incorporated, and further, Bosworth discloses

- at least one of the plurality of instances represents a type declaration, at least another instance being encapsulated within the instance representing the type declaration, the at least another instance representing a programmatic construct that derives from the at least type declaration(Fig. 3b, "The objects of a class hierarchy, such as class hierarchy..., typically derive from a base root object," col. 11 lines 27-44).

Per claim 18:

The rejection of claim 17 is incorporated, and further, Bosworth discloses

at least one of a statement and an expression(Bosworth, "In the object class hierarchy..., built-in value types...and user-defined value types...are stored as any other object within the object class hierarchy..., providing the boxed value type with object-like attributes," i.e. col. 11 lines 45-62; col. 7 lines 13-35) as claimed

Per claim 19:

The rejection of claim 16 is incorporated, and further, Bosworth discloses an interface that enables transformation of the representation to the different representation, the interface being operative to employ the at least one item to facilitate the transformation of the language-neutral representation into the different representation (Bosworth, i.e. col. 13 lines 27-47;"any translation of the common language file into a form suitable for use by the runtime environment...convert the received common output files...into output code that can be executed in the execution environment," col. 14 lines 1-10) as claimed.



Per claim 20:

The rejection of claim 19 is incorporated, and further, Bosworth discloses a compiler interface programmed to enable transformation of the language-neutral representation to a corresponding low-level language code representation (Bosworth, i.e. "any translation of the common language file into a form suitable for use by the runtime environment...convert the received common output files...into output code that can be executed in the execution environment," col. 14 lines 1-10) as claimed.

Per claim 21:

The rejection of claim 20 is incorporated, and further, Bosworth discloses an assembly of computer-executable instructions (Bosworth, i.e. "any translation of the common language file into a form suitable for use by the runtime environment...convert the received common output files...into output code that can be executed in the execution environment," col. 14 lines 1-10) as claimed.

Per claim 22:

The rejection of claim 19 is incorporated, and further, Bosworth discloses a code generator interface programmed to enable generation of a high-level language code representation from the language-neutral representation (Bosworth, i.e. col. 13 lines 27-47 ; "any translation of the common language file into a form suitable for use by the



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runtime environment...convert the received common output files...into output code that can be executed in the execution environment," col. 14 lines 1-10) as claimed.

Per claim 23:

Bosworth discloses:

-A language-neutral representation of compile unit that are transformable to at least one other type of software code representation (Bosworth, i.e. "the common language output files...have executable instructions in a "common"...in the sense of universal...intermediate language suitable for representing the concepts of a plurality of different types of source languages...so that only one type of intermediate language need be used regardless of the specific source language used," col. 13 lines 27-47)

-a hierarchal arrangement of objects, each object representing a different program element of the compile unit class (Bosworth, i.e. "In the object class hierarchy..., built-in value types...and user-defined value types...are stored as any other object within the object class hierarchy..., providing the boxed value type with object-like attributes," col. 11 lines 45-62)

-at least one class object that represents at least one defined class of program elements of the compile unit(i.e. Fig. 3b, "The objects of a class hierarchy, such as class hierarchy..., typically derive from a base root object," col. 11 lines 27-44)

-at least one member object associated with the at least one class object that



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represents computer-executable instructions operable on at least some program elements in the at least one defined class(Bosworth, i.e. "In the object class hierarchy..., built-in value types...and user-defined value types... are stored as any other object within the object class hierarchy..., providing the boxed value type with object-like attributes," col. 11 lines 45-62; col. 7 lines 13-35) as claimed

Per claim 24:

The rejection of claim 23 is incorporated, and further, Bosworth discloses a namespace object that represents a namespace of the compile unit, the namespace object comprising a collection of class objects including the at least one class object (Bosworth, i.e. col. 12 lines 60-67) as claimed.

Per claim 25:

The rejection of claim 24 is incorporated, and further, Bosworth discloses a plurality of member objects associated with the at least one class object, wherein the at least one class object represents a common base class that is shared by the plurality of member objects (i.e. "The objects of a class hierarchy, such as class hierarchy...typically derive from a base root object," col. 11 lines 27-44) as claimed.

Per claims 26-31, these claims are another versions of the claimed representation discussed in claims 18-22, respectively, and are rejected for the same reasons set forth in connection with the rejections of claims 18-22 above.



Per claims 32-35, these claims are another versions of the claimed representation discussed in claims 18-22, respectively, and are rejected for the same reasons set forth in connection with the rejections of claims 18-22 above

Per claims 36-39, these claims are system versions of claims 23-26 and 31, respectively, and are rejected for the same reasons set forth in connection with the rejections of claims 23-26 above.

Per claim 40, it is the computer-readable medium version of claim 14, respectively, and is rejected for the same reasons set forth in connection with the rejection of claim 14 above.

Per claim 41, 42, it is the method version of claim 39, respectively, and is rejected for the same reasons set forth in connection with the rejection of claim 39 above.

Per claims 43-45 and 46, these claims are system versions of claims 37 and 38 respectively, and are rejected for the same reasons set forth in connection with the rejections of claims 37 and 38 above.

Per claim 47, it is the method version of claim 29, respectively, and is rejected for the same reasons set forth in connection with the rejection of claim 29 above.

Per claim 48 and 49, it is the system version of claim 30, respectively, and is rejected for the same reasons set forth in connection with the rejection of claim 30 above.

### ***Response to Arguments***



8. Applicant's arguments filed 9/1/2004 have been fully considered but they are not persuasive.

Per claims 1, 14, 23, 32, 36, 40, 41, 43, 47, and 48:

The Applicant states that the claims recite a "language-neutral representation of a compile unit" and this "representation is not in a form that can be executed in a runtime environment (e.g., not compiled code). It is in a form that can be transformed into a high-level language or a low level language. Further transformation outside of the runtime environment is required to bring the language neutral representation of the compile unit into a form that the runtime environment can execute. Bosworth does not teach or suggest a language neutral representation of a compile unit as in applicants' claimed invention. Rather, Bosworth teaches language neutral representation of executable code- not of a unit to be compiled (e.g., compile unit) as in applicants' claimed invention (page 16).

In response to applicant's argument that the reference fails to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the term "compile unit" defined as a "form that can be transformed into a high-level language or a low level language" and a "unit to be compiled") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). As such, the claims are read with the broadest reasonable interpretation in mind (Note MPEP 2111). Further, the term,



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"compile unit" is not definite in meaning as it can mean many things such as a compiled unit, a compiling unit, or a unit to be compiled etc. Therefore, the two terms, which the applicant appears to consider them identical, a "compile unit" and a "unit to be compiled" are totally different in scope. Accordingly, the examiner interprets a "compile unit" as any of a compiled unit, compiling unit, or a unit to be compiled. As the applicant admits, Bosworth teaches a language neutral representation of executable code.

Therefore, in view of the broadest reasonable interpretation above, Bosworth discloses a language-neutral representation of a compile unit as claimed. Therefore, the rejection of claims 1, 14, 23, 32, 36, 40, 41, 43, 47, and 48 is considered proper and maintained.

Per claims 11, 22, 31, 35, 39, and 42:

The applicant states that the claims recite "conversion of the language-neutral representation to a corresponding high-level language code representation. High level language code such as C, C++...as described in the subject claim is not in executable form. Bosworth et al. does not describe conversion of the language neutral representation into a high level language. Rather, Bosworth et al. describes a language neutral representation that can be executed in a runtime environment and that also can be read and analyzed by a compiler to produce an executable language neutral representation which is not in a high level language (page 16).

In response, the examiner points out that the claims recite "high-level language code **representation**" not "high-level language code." The examiner agrees that high-level languages include C, C++, C# etc. However, the term "representation" makes the



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claim broad. For example, the object code of C++ can represent C++ in an executable form. It is not in a high-level language but it can be considered to be in a C++ executable representation. Brosworth discloses "executable instructions in a common ... intermediate language suitable for representing the concepts of a plurality of different types of source languages [such as] ... object oriented languages, so that only one type of intermediate language need to be used regardless of the specific source language used ( col. 13 lines 27-40)." Therefore, in view of the broadest reasonable interpretation above, Brosworth discloses "conversion of the language-neutral representation to a corresponding high-level language code representation" as claimed. Therefore, the rejection of claims 11, 22, 31, 35, 39, and 42 is considered proper and maintained.

### ***Conclusion***

**9. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Insun Kang whose telephone number is 571-272-3724. The examiner can normally be reached on M-F 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on 571-272-3719. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Insun Kang  
Patent Examiner  
1/19/2004

  
JOHN CHAVIS  
PATENT EXAMINER  
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